

Citation Information for Symposium Presentations

Presentations can be found at:

<http://www.tetrattech-ffx.com/nutrients4/agenda.htm>

Session 1: Overview of Mississippi River Basin Water Control and Hydrology

Speaker: Len Bahr

Presentation: Restoring a Functional Distributary System for the Lower Mississippi/Atchafalaya Rivers: Challenges and Implications for Coastal Restoration and Gulf Hypoxia

Citation Information

Information not received.

Speaker: Larry Banks

Presentation: Mississippi River Watershed Management—The Big Picture
Status Report on Study of Land Management as Non-Structural Flood Control Measure

Citation Information

Information not received.

Speaker: Gregory McCabe

Presentation: Variability and Trends in the Mississippi River Basin Streamflow

Citation Information

Note: Currently awaiting authorization to post presentation.

McCabe, G.J., and Wolock, D.M., 2002. **A Step Increase in Streamflow in the Conterminous United States.** *Geophysical Research Letters*, 29: 2185.

Session 2: Trends in Sources and Transport of Nutrients and Sediment within Major Tributaries of the Mississippi–Atchafalaya River Basin (MARB)

Speaker: William Battaglin

Presentation: Streamflow and Nitrogen, Phosphorus, and Silica Flux at Selected Sites in the Mississippi River Basin, 1980-2005

Citation Information

Note: Currently awaiting authorization to post presentation. Presenter plans to send the approved version of the presentation at a later date.

1. The new toxics program hypoxia web site is my primary reference-
<http://toxics.usgs.gov/hypoxia> (this should be up by 11/20)
2. Ruddy, B.C., Lorenz, D.L., and Mueller, D.K., 2006. County-level estimates of nutrient inputs to the land surface of the conterminous United States, 1982-2001. U.S. Geological Survey Scientific Investigations Report 2006-5012, accessed at <http://pubs.usgs.gov/sir/2006/5012/>.

Speaker: Wayne Maresch
Presentation: Agricultural Diffuse Sources

Citation Information

The statistical data represented in the maps and charts in Mr. Maresch's PowerPoint presentation come from the National Resources Inventory (NRI) database. Specifically—

- Slide # 5: Chart is based on data from the 2003 Annual NRI. The data are available online at <http://www.nrcs.usda.gov/technical/land/nri03/nri03landuse-mrb.html> . Chart was developed specifically for this presentation.
- Slide #6: Chart is based on data from the 2003 Annual NRI. Chart (in slightly modified format) and data are available online at <http://www.nrcs.usda.gov/technical/land/nri03/nri03eros-mrb.html> .
- Slide #7: Map is based on data from the 1997 NRI. Map is published online at <http://www.nrcs.usda.gov/technical/land/meta/m5112.html> .
- Slide #20: Chart is based on data from the 2003 Annual NRI. Data are available online at <http://www.nrcs.usda.gov/technical/land/nri03/nri03landuse-mrb.html> . Chart was developed specifically for this presentation.
- Slide #21: Chart is based on data from the 2003 Annual NRI. Data are available online at <http://www.nrcs.usda.gov/technical/land/nri03/nri03eros-mrb.html> . Chart was developed specifically for this presentation.
- Slide #22: Chart is based on data from the 2003 Annual NRI. Data are available online at <http://www.nrcs.usda.gov/technical/land/nri03/nri03landuse-mrb.html> . Chart was developed specifically for this presentation.
- Slide #23: Map is based on data from the 2003 Annual NRI. Data and a nationwide version of the map are available online at <http://www.nrcs.usda.gov/technical/land/nri03/nri03eros-mrb.html>
- Slides #24-27: Maps are based on data from the 1997 NRI. They were developed specifically for this presentation, but are derived from nationwide maps previously published on the NRI website. Information on the 1997 NRI is available online at <http://www.nrcs.usda.gov/technical/NRI/1997/index.html> .

The NRI is a scientifically based statistical survey of natural resource conditions and trends on non-Federal lands of the United States. It is conducted by the U.S. Department of Agriculture's Natural Resources Conservation Service. Technical documentation about NRI statistical design and estimation procedures is available online at www.nrcs.usda.gov/technical/NRI . Specific questions about the data used in Mr. Maresch's presentation should be directed to Mr. Daryl Lund

Speaker: Kavya Kasturi

Presentation: Municipal and Industrial Point Sources

Citation Information

1. Goolsby, Donald A., William A. Battaglin, Gregory B. Lawrence, Richard S. Artz, Brent T. Aulenbach, Richard P. Hooper, Dennis R. Keeney, and Gary J. Stensland. 1999. Flux and Sources of Nutrients in the Mississippi–Atchafalaya River Basin: Topic 3 Report for the Integrated Assessment on Hypoxia in the Gulf of Mexico.
2. NOAA Coastal Ocean Program Decision Analysis Series No. 17. NOAA Coastal Ocean Program, Silver Spring, MD. 130 pp.
3. Mississippi River/Gulf of Mexico Watershed Nutrient Task Force. 2001. Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico. Washington, DC.
4. CENR. 2000. Integrated Assessment of Hypoxia in the Northern Gulf of Mexico. National Science and Technology Council Committee on Environment and Natural Resources, Washington, DC.
5. USEPA. 1996. NPDES Permit Writers' Manual. EPA-833-B-96-003. Office of Wastewater Management.
6. USEPA. 1998. Protocol For Point Source Nutrient Loading Analysis in the Mississippi River System. <http://www.epa.gov/msbasin/taskforce/protocol.htm>
7. USEPA. 1998. Documentation of Phase I and Phase II Activities. <http://www.epa.gov/msbasin/taskforce/phases.htm>

Items 1,2, and 3 are fine as is – they are the Topic 3 report, Action Plan, and Integrated assessment all of which the SAB should already have seen. 4 is the Permit Writers' Manual. I'm not sure if this is peer reviewed or if this is relevant information - it's essentially EPA guidance. 5 and 6 are from the epa.gov/msbasin website and I do not know proper citations for this. I put the links at the end of the citation. Hopefully you can work with this. Let me know if you need anything else from me.

Session 3: Transport and Transformation Processes within Major Tributaries of the MARB

Speaker: Simon Donner

Presentation: Hydrology (Precipitation) and Land-Use Change

Citation Information

1. Donner, SD and Scavia, D. How climate affects nitrogen flux by the Mississippi River and the development of hypoxia in the Gulf of Mexico. *Limnology and Oceanography*, in press
2. Donner, SD, Kucharik, CJ, Oppenheimer, M (2004) The influence of climate on in-stream removal of nitrogen. *Geophysical Research Letters*, 31, L20509. Editor's Choice in *Science*, Nov 19, 2004.
3. Donner, SD, Foley, JA, Kucharik, CJ (2004) Impact of changing land use practices on nitrate export by the Mississippi River. *Global Biogeochemical Cycles*, 18, GB1028.

4. Donner, SD, Kucharik, CJ (2003) Evaluating the impacts of land management and climate variability on crop production and nitrate export across the Upper Mississippi Basin. *Global Biogeochemical Cycles*, 17, 1085, doi: 10.1029/2001GB1808.
5. Donner, SD (2003) The distribution of the primary crops in the U.S. since 1950 and the relationship to river nutrient levels. *Global Ecology and Biogeography*, 12, 341-355.
6. Donner, SD, Coe, MT et al. (2002) Modeling the impact of hydrology on nitrate transport in the Mississippi River System from 1955-1994. *Global Biogeochemical Cycles*, 16(3), 2001GB001396.

Speaker: Larry Brown

Presentation: Subsurface Drainage: Status and Impact on Nutrient Transport

Citation Information

Information not received.

Speaker: Durelle Scott

Presentation: Riparian Nutrient Processing

Citation Information

1. Carlyle, G., and A. R. Hill (2001), Groundwater phosphate dynamics in a river riparian zone: effects of hydrologic flowpaths, lithology and redox chemistry, *Journal Of Hydrology*, 247, 151-168.
2. Clausen, J. C., K. Guillard, C. M. Sigmund, and K. M. Dors (2000), Ecosystem restoration - Water quality changes from riparian buffer restoration in Connecticut, *Journal Of Environmental Quality*, 29, 1751-1761.
3. Devito, K. J., D. Fitzgerald, A. R. Hill, and R. Aravena (2000), Nitrate dynamics in relation to lithology and hydrologic flow path in a river riparian zone, *Journal Of Environmental Quality*, 29, 1075-1084.
4. Groffman, P. M., and M. K. Crawford (2003), Denitrification potential in urban riparian zones, *Journal Of Environmental Quality*, 32, 1144-1149.
5. Mitsch, W. J., and J. W. Day (2006), Restoration of wetlands in the Mississippi-Ohio-Missouri (MOM) River Basin: Experience and needed research, *Ecological Engineering*, 26, 55-69.
6. Mitsch, W. J., J. W. Day, J. W. Gilliam, P. M. Groffman, D. L. Hey, G. W. Randall, and N. M. Wang (2001), Reducing nitrogen loading to the Gulf of Mexico from the Mississippi River Basin: Strategies to counter a persistent ecological problem, *Bioscience*, 51, 373-388.
7. Ocampo, C. J., C. E. Oldham, and M. Sivapalan (2006), Nitrate attenuation in agricultural catchments: Shifting balances between transport and reaction, *Water Resources Research*, 42.
8. Sabater, S., A. Butturini, J. C. Clement, T. Burt, D. Dowrick, M. Hefting, V. Maitre, G. Pinay, C. Postolache, M. Rzepecki, and F. Sabater (2003), Nitrogen removal by riparian buffers along a European climatic gradient: Patterns and factors of variation, *Ecosystems*, 6, 20-30.

9. Scott, D., J. W. Harvey, R. B. Alexander, and G. E. Schwarz (in press), Dominance of organic nitrogen from headwater streams to large rivers across the conterminous U.S. *Global Biogeochemical Cycles*, *In press*.
 10. Sirivedhin, T., and K. A. Gray (2006), Factors affecting denitrification rates in experimental wetlands: Field and laboratory studies, *Ecological Engineering*, *26*, 167.
 11. Vidon, P. G., and A. R. Hill (2006), A landscape-based approach to estimate riparian hydrological and nitrate removal functions, *Journal Of The American Water Resources Association*, *42*, 1099-1112.
 12. Vidon, P. G. F., and A. R. Hill (2004), Landscape controls on nitrate removal in stream riparian zones, *Water Resources Research*, *40*.
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Speaker: Todd Royer

Presentation: Do In-stream Transformations Affect Nitrogen Loading to the Mississippi River?

Citation Information

1. Alexander, R.B., R.A. Smith, and G.E. Schwarz. 2000. Effect of stream channel size on the delivery of nitrogen to the Gulf of Mexico. *Nature* 403:758-761.
2. Bernot, M.J., J.L. Tank, T.V. Royer, and M.B. David. 2006. Nutrient uptake in streams draining agricultural catchments of the midwestern United States. *Freshwater Biology* 51:499-509.
3. Bohlke, J.K., J.W. Harvey, and M.A. Voytek. 2004. Reach-scale isotope tracer experiment to quantify denitrification and related processes in a nitrate-rich stream, mid-continent USA. *Limnology and Oceanography* 49:821-838.
4. Darracq, A. and G. Destouni. 2005. In-stream nitrogen attenuation: model-aggregation effects and implications for coastal nitrogen impacts. *Environmental Science and Technology* 39:3716-3722.
5. David, M.B. and L.E. Gentry. 2000. Anthropogenic inputs of nitrogen and phosphorus and riverine export for Illinois, USA. *Journal of Environmental Quality* 29:494-508.
6. David, M.B., L.G. Wall, T.V. Royer, and J.L. Tank. 2006. Denitrification and the nitrogen budget of a reservoir in an agricultural landscape. *Ecological Applications* In press.
7. Dodds, W.K. and 11 others. 2000. Quantification of the nitrogen cycle in a prairie stream. *Ecosystems* 3:574-589.
8. Ensign, S.H., S.K. McMillan, S.P. Thompson, and M.F. Piehler. 2006. Nitrogen and phosphorus attenuation within the stream network of a coastal agricultural watershed. *Journal of Environmental Quality* 35:1237-1247.
9. Forshay, K.J. and E.H. Stanley. 2005. Rapid nitrate loss and denitrification in a temperate river floodplain. *Biogeochemistry* 74:43-64.
10. Gergel, S.E., S.R. Carpenter, E.H. Stanley. 2005. Do dams and levees impact nitrogen cycling? Simulating the effects of floodplain alterations on floodplain denitrification. *Global Change Biology* 11:1352-1367.
11. Gucker, B. and M.T. Pusch. 2006. Regulation of nutrient uptake in eutrophic lowland streams. *Limnology and Oceanography* 51:1443-1453.

- i. Hamilton, S.K. and 5 others. 2001. Nitrogen uptake and transformation in a midwestern US stream: a stable isotope enrichment study. *Biogeochemistry* 54:297-340.
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Speaker: Emily Stanley

Presentation: Phosphorus Dynamics in Headwater Basins of the Upper Mississippi River in Wisconsin

Citation Information

1. Bennett, E.M., T. Reed-Andersen, J.N. Houser, J.R. Gabriel, and S.R. Carpenter. 1999. A phosphorus budget for the Lake Mendota watershed. *Ecosystems* 2:69-75.
2. Bennett, E.M., S.R. Carpenter, and N.F. Caraco. 2001. Human impact on erodable phosphorus and eutrophication: A global perspective. *BioScience* 51:227-234.
3. Diebel, M. W., J. T. Maxted, S. Han, D. M. Robertson, M. J. Vander Zanden. In prep. Landscape planning for agricultural nonpoint-source pollution reduction II: Identification of sites to improve stream water quality with riparian buffers.
4. Panuska, J.C. 2006. Dissolved and particulate phosphorus losses in rainfall and snowmelt runoff from corn fields. Ph.D. dissertation, University of Wisconsin, Madison, WI.
5. Robertson, D.M., D.J. Graczyk, P.J. Garrison, L. Wang, G. LaLiberte, and R. Bannerman. 2006. Nutrient concentrations and their relations to the biotic integrity of wadeable streams in Wisconsin. U.S. Geological Survey Professional Paper 1722.
6. Stanley, E.H. and M.W. Doyle. 2002. A geomorphic perspective on nutrient retention following dam removal. *BioScience* 52:693-701.
7. Stigliani, W.M., P. Doelman, W. Salomons, R. Schulin, G.R.B. Schmidt, S.E.A.T.M Van der Zee. 1991. Chemical time bombs- predicting the unpredictable. *Environment* 33:4-8.
8. University of Wisconsin Madison College of Agriculture and Life Sciences. 2005. The Wisconsin Buffer Initiative: Report to the Wisconsin Natural Resources Board. 104 pp. Madison, WI.

Speaker: William James

Presentation: Phosphorus Forms, Fluxes, and Transformations in the Upper Mississippi River

Citation Information

Information not received.

Session 4: Characterization of Sources, Transport, and Fate of Nutrients and Sediment from Major Tributaries to the Mainstem MARB and the Gulf of Mexico

Speaker: William Richardson
Presentation: Patterns of Nitrogen Cycling in the Upper Mississippi River
Citation Information
Information not received.

Speaker: Eric Strauss
Presentation: Nitrogen Loss Due to Denitrification in the Mississippi River
Citation Information
Information not received.

Speaker: Brian Hill
Presentation: Downstream Patterns in Si, N, and P in the Upper Mississippi River Basin
Citation Information
I am only at the initial stages of preparing a ms related to my talk at the symposium, but here is the literature I considered in preparing the talk--

1. Literature related to MARB-SFT presentation, “Downstream patterns in Si, N, and P in the Upper Mississippi River Basin”—Brian Hill
2. Alexander, RB, RA Smith & GE Schwarz. 2000. Effects of stream channel size on the delivery of nitrogen to the Gulf of Mexico. *Nature* 403:758-761.
3. Dodds, WK. 2006. Nutrients and the “dead zone”: the link between nutrient ratios and dissolved oxygen in the northern Gulf of Mexico. *Frontiers in Ecology and the Environment* 4:211-217.
4. Fischer, H, F Kloep, S Wilzcek & MT Pusch. 2005. A river’s liver—microbial processes within the hyporheic zone of a large lowland river. *Biogeochemistry* 76:349-371.
6. Hill BH, CM Elonen, TM Jicha, AM Cotter, AS Trebitz & NP Danz. 2006. Sediment microbial enzyme activity as an indicator of nutrient limitation in Great Lakes coastal wetlands. *Freshwater Biology* 51:1670-1683.
7. Justic, D., NN Rabalais & RE Turner. 1995. Stoichiometric nutrient balance and the origin of coastal eutrophication. *Marine Pollution Bulletin* 30: 41-46.
8. McIsaac, GR, MB David, GZ Gertner & DA Goolsby. 2002. Relating net nitrogen input in the Mississippi River Basin to nitrate flux in the Lower Mississippi River: a comparison of approaches. *Journal of Environmental Quality* 31:1610-1622.
9. Meybeck, M. 1982. Carbon, nitrogen and phosphorus transport by world rivers. *American Journal of Science* 282:401-450.
10. Stream Solute Workshop. 1990. Concepts and methods for assessing solute dynamics in stream ecosystems. *Journal of the North American Benthological Society* 9: 95-119.
11. Turner, RE, N Qureshi, NN Rabalais, Q Dortch, D Justic, RP Shaw & JCope. 1998. Fluctuating silicate:nitrate ratios and coastal plankton food webs. *Proceedings of the National Academy of Science* 95:13048-13051.
12. Turner, RE & NN Rabalais. 2004. Suspended sediment, C, N, P, and Si yields from the Mississippi River Basin. *Hydrobiologia* 511:79-89.

13. Turner, RE, NN Rabalais, D Justic & Q Dortch. 2003. Global patterns of dissolved N, P and Si in large rivers. *Biogeochemistry* 64:297-317.
 14. Turner, RE, NN Rabalais, D Justic & Q Dortch. 2003. Future aquatic nutrient limitations. *Marine Pollution Bulletin* 46:1032-1034.
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Speaker: Jeff Houser

Presentation: Nutrients, Chlorophyll, and Suspended Sediment in the Upper Mississippi River: Patterns in Time and Space

Citation Information

Information not received.

Speaker: William James

Presentation: Nitrogen Processing in Flow-Controlled Backwater Systems of the Upper Mississippi River

Citation Information

Information not received.

Speaker: Stephen Faulkner

Presentation: Achieving Hypoxia Action Goals in the Lower Mississippi Valley

Citation Information

Note: Currently awaiting authorization to post presentation.

Session 5: Modeling of Sources, Transport, and Fate of Nutrients and Sediment

Speaker: David Mulla

Presentation: Small-to-Intermediate-Scale Modeling

Citation Information

Information not received.

Speaker: Greg McIsaac

Presentation: Net Anthropogenic Nitrogen Inputs (NANI) to the Mississippi River Basin

Citation Information

1. Boyer, E.W., C.L. Goodale, N.A. Jaworski, and R.W. Howarth. 2002. Anthropogenic nitrogen sources and relationships to riverine nitrogen export in the northeastern USA. *Biogeochemistry* 57:137-169.
2. Goolsby, D.A., W.A. Battaglin, G.B. Lawrence, R.S. Artz, B.T. Aulenbach, R.P. Hooper, D.R. Keeney, and G.J. Stensland. 1999. Flux and Sources of Nutrients in the Mississippi-Atchafalaya River Basin. Topic 3. Report of the Integrated Assessment on Hypoxia in the Gulf of Mexico. NOAA Coastal Ocean Program Decision Analysis Series No. 17. NOAA Coastal Ocean Program, Silver Spring, MD.
3. Howarth, R. W., G. Billen, D. Swaney, A. Townsend, N. Jarworski, K. Lajtha, J. A. Downing, R. Elmgren, N. Caraco, T. Jordan, F. Berendse, J. Freney, V. Kueyarov, P. Murdoch, and Zhu Zhao-liang. 1996. Riverine inputs of nitrogen to

- the North Atlantic Ocean: Fluxes and human influences. *Biogeochemistry* 35: 75-139.
4. Howarth, R.W., D.P. Swaney, E.W. Boyer, R. Marino, N. Jaworski, and C. Goodale The influence of climate on average nitrogen export from large watersheds in the Northeastern United States. *Biogeochemistry* 79:163-186.
 5. McIsaac, G.F., M.B. David, G. Z. Gertner and D.A. Goolsby. 2001. Eutrophication: Nitrate flux in the Mississippi River. *Nature* 414:166-167.
 6. McIsaac, G.F., M.B. David, G. Z. Gertner and D.A. Goolsby. 2002. Relating N inputs to the Mississippi River Basin and nitrate flux in the Lower Mississippi River: A comparison of approaches. *Journal of Environmental Quality* 31:1610-1622.
 7. McIsaac, G.F. and X. Hu. 2004. Net N Input and Riverine N Export from Illinois Agricultural Watersheds With and Without Extensive Tile Drainage. *Biogeochemistry* 70: 251-271.
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Speaker: Richard Alexander

Presentation: Advances in Estimating Nutrient Sources, Transport, and Fate in the Mississippi/Atchafalaya River Basins Using the SPARROW Model

Citation Information

Note: Currently awaiting authorization to post presentation.

1. Alexander, R.B., Smith, R.A., and Schwarz, G.E., 2000, Effect of stream channel size on the delivery of nitrogen to the Gulf of Mexico, *Nature*, 403, 758-761.
2. Alexander, R.B., Smith, R.A., and Schwarz, G.E., 2004, Estimates of diffuse phosphorus sources in surface waters of the United States using a spatially referenced watershed model, *Water Science and Technology*, 49, 1-10.
3. Boyer, E.W., Alexander, R.B., Parton, W.J., Li, C., Butterbach-Bahl, K., Donner, S.D., Skaggs, R.W., and S.J. Del Grosso, 2006, Modeling denitrification in terrestrial and aquatic ecosystems at regional scales, *in press, Ecological Applications*.
4. Schwarz, G.E., Hoos, A.B., Alexander, R.B., and R.A. Smith, 2006, The SPARROW surface water-quality model: Theory, application, and user documentation, U.S. Geological Survey Techniques and Methods Report, Book 6, Chapter B3.
5. Smith, R.A., Schwarz, G.E., and Alexander, R.B., 1997, Regional interpretation of water-quality monitoring data, *Water Resources Research*, 33, 12, 2781-2798.

Note that many of the findings from the presentation were based on an analysis and manuscript that is in preparation:

Alexander, R.B., Smith, R.A., Schwarz, G.E., and E.W. Boyer, in prep., Structural and geographic differences in the sources and transport of nitrogen and phosphorus in the Mississippi and Atchafalaya River Basins.

Because this in prep, work has not yet received USGS approval, public access should not be given to my PowerPoint presentation from the nutrient symposium.

Speakers: Simon Donner & Christopher Kucharik
Presentation: Large-Scale Modeling: IBIS-THMB Dynamic Modeling System
Citation Information

Note: This information is repeated from above.

1. Donner, SD and Scavia, D. How climate affects nitrogen flux by the Mississippi River and the development of hypoxia in the Gulf of Mexico. *Limnology and Oceanography*, in press
2. Donner, SD, Kucharik, CJ, Oppenheimer, M (2004) The influence of climate on in-stream removal of nitrogen. *Geophysical Research Letters*, 31, L20509. Editor's Choice in *Science*, Nov 19, 2004.
3. Donner, SD, Foley, JA, Kucharik, CJ (2004) Impact of changing land use practices on nitrate export by the Mississippi River. *Global Biogeochemical Cycles*, 18, GB1028.
4. Donner, SD, Kucharik, CJ (2003) Evaluating the impacts of land management and climate variability on crop production and nitrate export across the Upper Mississippi Basin. *Global Biogeochemical Cycles*, 17, 1085, doi: 10.1029/2001GB1808.
5. Donner, SD (2003) The distribution of the primary crops in the U.S. since 1950 and the relationship to river nutrient levels. *Global Ecology and Biogeography*, 12, 341-355.
6. Donner, SD, Coe, MT et al. (2002) Modeling the impact of hydrology on nitrate transport in the Mississippi River System from 1955-1994. *Global Biogeochemical Cycles*, 16(3), 2001GB001396.

Speaker: Philip Gassman
Presentation: Application of SWAT to the Upper Mississippi River Basin and Other Watersheds
Citation Information

Information not received.

Speaker: Stephen Smith
Presentation: Fates of Eroded Soil Organic Carbon in the Mississippi Basin
Citation Information

Coauthors: R. O. Slezzer, W. H. Renwick, R. W. Buddemeier

1. Smith, S. V., W. H. Renwick, R. W. Buddemeier, and C. J. Crossland. 2001. Budgets of soil erosion and deposition for sediments and sedimentary organic carbon across the conterminous United States. *Global Biogeochemical Cycles* 15: 697-707.
2. Smith, S. V., W. H. Renwick, J. D. Bartley, and R. W. Buddemeier. 2002. Distribution and significance of small, artificial water bodies across the United States Landscape. *The Science of the Total Environment* 299: 21-36.
3. Renwick, W. H., S. V. Smith, R. O. Slezzer, and R. W. Buddemeier. 2004. Comment on "Managing Soil Carbon" (II) *Science*. 305: 1567c.

4. Renwick, W. H. S. V. Smith, J. D. Bartley, R. W. Buddemeier. 2005. The role of impoundments in the sediment budget of the conterminous United States. *Geomorphology* 71: 99-111.
5. Smith, S. V., R. O. Sleezer, W. H. Renwick, R. W. Buddemeier. 2005. Fates of eroded soil organic carbon: Mississippi Basin case study. *Ecological Applications* 15: 1929-1940. (primary literature source for this presentation)
6. All data organized and analyzed by USGS HUC8 cataloging units, then aggregated to 5 sub-systems of the MS Basin.
7. Erosion data from NRCS data for 1982, 1987, 1992.
8. Soil composition data, including floodplain delineation: NRCS STATSGO.
9. River flow and composition data: USGS Mississippi River Basin NASQAN Program.
10. Large, inventoried water bodies: USACE NID.
11. Small water bodies: USGS NLCD, as extracted by Smith et al., 2002, *Science of the Total Environment*.
12. Miscellaneous other data sources for ancillary information.

Session 6: Lessons from Other River Systems

Speaker: Wilfred Wollheim

Presentation: Nitrogen Removal Capacity of Entire River Networks—Interactions of Geomorphic, Hydraulic and Biological Factors

Citation Information

Information not received.

Speaker: Todd Rasmussen

Presentation: Nutrient Problems and Abatement Strategies in the Pearl River Delta, China

Citation Information

1. Chen, Yongqin David, 2001, Sustainable Development and Management of Water Resources for Urban Water Supply in Hong Kong, *Water International*, 26(1):119-128.
 2. China Environmental Protection Agency, 2000, Pearl River TMDL Study (in Chinese), 9th Five-Year Key Study Plan (1996-2000), Guangzhou, China
 3. Hills, Peter, Zhang Lei, and Liu Jianhua, 1997, Pollution of the Pearl River: Implications for Environmental Policy and Management in Hong Kong and the Delta Region, Paper presented at the Guangdong - Hong Kong World Environmental Day Forum, organized by the South China Institute of Environmental Sciences, Guangzhou, China.
 4. Jun, Xia, and Yongqin David Chen, 2001, Water problems and opportunities in the hydrological sciences in China, *Hydrological Sciences*, 46(6):907-921.
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